Claims

1. An antibody characterized by the following features:

(a) it is capable of supressing an immune reaction;

(b) it is devoid of constant antibody regions; and

(c) it binds an epitope on the CD3 complex of the T-cell receptor.

2. The antibody of claim 1 that is monovalent, bivalent or multivalent.

3. The antibody of claim 2 that is a diabody.

4. The antibody of claim 2 that comprises two scFv antibodies linked by a peptide linker.

5. The antibody of claim 2 that is a single chain diabody.

6. The antibody according to any one of claims 1 to 5, wherein the variable V_H and V_L domains are connected via the peptide linker SAKTTP or SAKTTPKLGG.

7. The antibody according to any one of claims 1 to 6 wherein the variable domains correspond to the variable domains of the antibody produced by the hybridoma of ATCC deposit number CRL 8001.

8. The antibody according to claim 7, wherein a cysteine at position H100A (Kabat numbering system) has been exchanged for another amino acid.

9. The antibody according to claim 8, wherein the cysteine has been exchanged for a serine.

10. A polynucleotide, which encodes an antibody of any one of claims 1 to 9.

11. An expression vector comprising the polynucleotide of claim 10.

12. The expression vector of claim 11, which is pSKK3-scFv_6-anti-CD3 (DSM 15137).

13. A host cell containing the expression vector of claim 11 or 12.

14. A pharmaceutical composition containing the antibody of any one of claims 1 to 9, the polynucleotide of claim 10 or the expression vector of claim 11 or 12.

15. Use of the antibody of any one of claims 1 to 9, the polynucleotide of claim 10 or the expression vector of claim 11 or 12 for the preparation of a pharmaceutical composition for immunotherapy.

16. Use according to claim 16, wherein said immunotherapy is a therapy against acute transplant rejections.

17. Use of the polynucleotide of claim 10 or the expression vector of claim 11 or 12 for the preparation of a pharmaceutical composition for gene therapy.

Abstract

Human CD3-specific antibody with immunosuppressive properties

Described are mono- and multivalent scFv-antibodies comprising the binding sites specific for the human T cell marker CD3. These antibodies are strongly immunosuppressive and do not cause a significant release of cytokines. Furthermore, polynucleotides encoding said antibodies are described as well as vectors comprising said polynucleotides, host cells transformed therewith and their use in the production of said antibodies. Pharmaceutical compositions containing any of the above mentioned polynucleotides, antibodies or vectors are useful for immunotherapy, preferably against acute transplant rejections.